

**Build-out Analysis Methodology for Land Use Pattern Map (Upper Broad Run and Upper  
Foley Transition Policy Subareas)  
August 23, 2006**

**Data Sources**

Data for this work was extracted on June 23, 2005 from the County's Land Management Information System (LMIS). The following data were extracted for all parcels in the Upper Broad Run and Upper Foley Transition Subareas:

MCPI (Unique Parcel Identifier Number)  
Primary Zoning  
Policy Area  
Parcel Occupancy Code (used to determine use of the parcel)  
Legal Acres  
Floodplain (Major and Minor)  
State Use Classification

**Analysis Methodology**

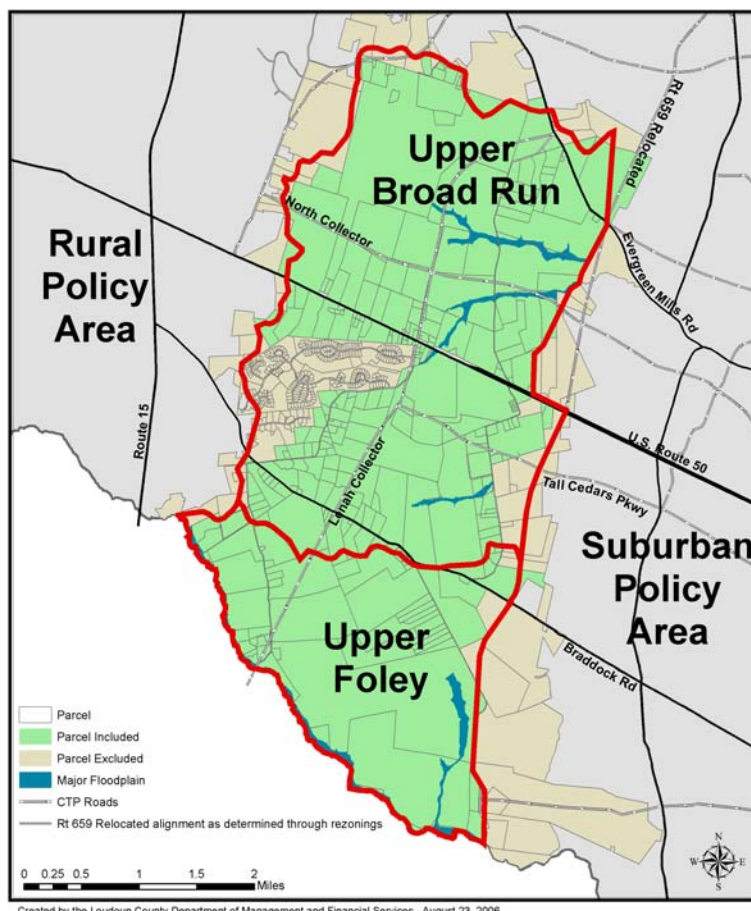
The following method was used to determine: 1) whether a parcel was "developable"; and 2) the maximum estimated number of residential units that could be built on the parcel under the four alternative development scenarios. To determine whether a parcel was "developable", parcels were examined and either removed from the analysis, or their development potential was modified based on the following assumptions (See Map Below):

1. Parcels included in Lenah Run and The Marches subdivisions; CD Smith (ZMAP 2004-0009), Kirkpatrick West (ZMAP 2002-0001), and Stone Ridge (ZMAP 2002-0013) approved rezonings; all land zoned PD-GI; and Arcola Elementary were removed from the analysis.<sup>1</sup>
2. Net buildable acreage includes all remaining acreage minus major floodplains. Steep slopes, churches, land zoned RC (13 acres), and land zoned PD-IP (0.11 acre) were included.
3. Parcels that could not accommodate additional residential units based on lot size and configuration were removed.
4. Parcels were considered fully developable if improvements were assessed at less than \$100,000 in 2004.
5. Consideration was not given to parcels that may have private restrictive covenants that limit development as the data was not available.
6. Parcels that were more than 50% outside of the Upper Broad Run and Upper Foley subareas were removed from the analysis.

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<sup>1</sup> Open space easements within the Upper Broad Run and Upper Foley subareas are all located within the Lenah Run subdivision therefore, they were already removed from the net buildable acres.

Parcels Included and Not Included in Build-Out Analysis  
CPAM 2005-0003 Upper Broad Run and Upper Foley Subareas



7. Parcels that were more than 50% within the Upper Broad Run and Upper Foley subareas were included in their entirety, except those parcels that have a portion within the area proposed to change from industrial to business within the Suburban Policy Area.<sup>2</sup> The portion outside of the Upper Broad Run and Upper Foley subareas were given a build-out density based on the adjacent land use pattern designation. If the portion outside was adjacent to two different land use patterns, the lower density land use pattern was used to determine development potential.

#### 8. Potential New Units

##### Scenario 1: Current Potential

- Densities based on existing zoning patterns (predominantly 1 dwelling unit/acre or 1 dwelling unit/3 acres), as adopted in the Revised 1993 Zoning Ordinance, January 2003.
- Density calculations were based on the parcel's primary zoning district.

Potential New Units: 4,608

<sup>2</sup> Portions of a parcel that are located within the proposed Business Community within the Suburban Policy Area are evaluated based on a separate build-out analysis.

Scenario 2: 2.95 dwelling units per acre outside of high density and 1 dwelling unit per acre areas

- New units determined based on Land Use Pattern Map, Revised July 13, 2006
- Areas delineated as 4 dwelling units per acre, including the stepping down of densities to the west<sup>3</sup> were evaluated based on 2.95 dwelling units per acre, which represents the lowest density proposed within the active rezoning applications (See Table 1).
- Higher Densities north of Route 50 adjacent to the Suburban Policy Area were calculated at 16 dwelling units per acre consistent with densities permitted in areas planned for Business uses, which are proposed to the east.
- Higher Densities south of Route 50 and around the Lenah Connector/Route 50 intersection were calculated at 10 dwelling units per acre.

**Table 1: Active Rezoning Applications in the Upper Broad Run and Upper Foley Subareas**

<b>Project</b>	<b>Acres</b>	<b>SFD</b>	<b>SFA</b>	<b>MF</b>	<b>Total # Units</b>	<b>Density***</b>
Greenfields ZMAP 2005-0032	1,956	1,894	1,404	2,569	5,867	3.00
Lenah ZMAP 2005-0033	481	574	702	648	1,924	4.00
Broad Run Village* ZMAP 2005-0034	1,132	1,229	1,489	1,595	4,313	3.81
Arcola/George Mason** ZMAP 2005-0045	565	500	505	2,116	3,121	5.52
Braddock Village ZMAP 2005-0031	149	86	324	450	860	5.77
Westport ZMAP 2005-0030	734	1,359	1,302	197	2,858	3.89
Kennedy Property ZMAP 2006-0012	44	80	50	0	130	2.95
<b>TOTAL</b>	<b>5,061</b>	<b>5,722</b>	<b>5,776</b>	<b>7,575</b>	<b>19,073</b>	<b>3.77 (Average)</b>

\* Total dwelling units includes 2,563 age-restricted units, including 786 SFD, 839 SFA, and 938 MF.

\*\* Total dwelling units do not include potential student and faculty housing within the George Mason University campus. According to the parking calculations provided on the Concept Development Plan, up to 700 students may be housed on the campus.

\*\*\* Represents gross residential density averaged over the entire acreage.

<sup>3</sup> Draft policy 4, p. 8-6 as recommended by the Planning Commission on July 6, 2006 calls for low densities, residential clusters, passive open space or active outdoor recreation facilities adjacent to the Rural Policy Area, north of Route 50 to establish a transition or greenbelt. This policy does not impact the overall density on the parcel; therefore, parcels within this area were evaluated based on 2.95 dwelling units per acre.

<b>Scenario 2</b>	<b>Dwelling Units</b>	<b>Acreage</b>
1 dwelling unit per acre	1,894	2,020
2.95 dwelling units per acre	15,968	5,457
Higher Densities (South of Route 50 and surrounding the Lenah Connector/Route 50 intersection) 10 dwelling units per acre	3,178	321
Higher Densities (North of Route 50 adjacent to the Suburban Policy Area) 16 dwelling units per acre	5,840	365
<b>Total (Upper Broad Run and Upper Foley Subareas)</b>	<b>26,880</b>	<b>8,163</b>

Scenario 3: 3.77 dwelling units per acre outside of high density and 1 dwelling unit per acre areas

- New units determined based on Land Use Pattern Map, Revised July 13, 2006
- Areas delineated as 4 dwelling units per acre, including the stepping down of densities to the west<sup>4</sup> was evaluated based on 3.77 dwelling units per acre, which represents the average density proposed with the active rezoning applications (See Table 1).
- Higher Densities north of Route 50 adjacent to the Suburban Policy Area were calculated at 16 dwelling units per acre consistent with densities permitted in areas planned for Business uses, which are proposed to the east.
- Higher Densities south of Route 50 and around the Lenah Connector/Route 50 intersection were calculated at 10 dwelling units per acre.

<b>Scenario 3</b>	<b>Dwelling Units</b>	<b>Acreage</b>
1 dwelling unit per acre	1,894	2,020
3.77 dwelling units per acre	20,448	5,457
Higher Densities (South of Route 50 and surrounding the Lenah Connector/Route 50 intersection) 10 dwelling units per acre	3,178	321
Higher Densities (North of Route 50 adjacent to the Suburban Policy Area) 16 dwelling units per acre	5,840	365
<b>Total (Upper Broad Run and Upper Foley Subareas)</b>	<b>31,360</b>	<b>8,163</b>

Scenario 4: 4.00 dwelling units per acre outside of high density and 1 dwelling unit per acre areas

- New units determined based on Land Use Pattern Map, Revised July 13, 2006
- Areas delineated as 4 dwelling units per acre, including the stepping down of densities to the west<sup>5</sup> was evaluated based on 4.0 dwelling units per acre, which represents the July 6, 2006 Planning Commission recommendation.

<sup>4</sup> Draft policy 4, p. 8-6 as recommended by the Planning Commission on July 6, 2006 calls for low densities, residential clusters, passive open space or active outdoor recreation facilities adjacent to the Rural Policy Area, north of Route 50 to establish a transition or greenbelt. This policy does not impact the overall density on the parcel; therefore, parcels within this area were evaluated based on 3.77 dwelling units per acre.

<sup>5</sup> Draft policy 4, p. 8-6 as recommended by the Planning Commission on July 6, 2006 calls for low densities, residential clusters, passive open space or active outdoor recreation facilities adjacent to the Rural Policy Area, north of Route 50 to establish a transition or greenbelt. This policy does not impact the overall density on the parcel; therefore, parcels within this area were evaluated based on 4.00 dwelling units per acre.

- Higher Densities north of Route 50 adjacent to the Suburban Policy Area were calculated at 16 dwelling units per acre consistent with densities permitted in areas planned for Business uses, which are proposed to the east.
- Higher Densities south of Route 50 and around the Lenah Connector/Route 50 intersection were calculated at 10 dwelling units per acre.

<b>Scenario 4</b>	<b>Dwelling Units</b>	<b>Acreage</b>
1 dwelling unit per acre	1,894	2,020
4 dwelling units per acre	21,704	5,457
Higher Densities (South of Route 50 and surrounding the Lenah Connector/Route 50 intersection) 10 dwelling units per acre	3,178	321
Higher Densities (North of Route 50 adjacent to the Suburban Policy Area) 16 dwelling units per acre	5,840	365
<b>Total (Upper Broad Run and Upper Foley Subareas)</b>	<b>32,616</b>	<b>8,163</b>

9. The mix of unit types for the development scenarios used to determine population, students, and capital costs were determined based on 100% single-family detached units for Scenario 1 (Current Potential) and 100% single-family detached units for the 1 dwelling unit per acre areas, the unit type mixes for current development in the Dulles Community (48% single-family detached, 38% single-family attached, and 14% multi-family)<sup>6</sup> were used for those areas outside of high density and 1 dwelling unit per acre areas, and a 50/50 mix of single-family attached and multi-family units were used for high density areas (10 dwelling units per acre and 16 dwelling units per acre areas) for Scenarios 2, 3, and 4.

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<sup>6</sup> Source: 2004 Loudoun County Annual Growth Summary

## Scenario 2: “Lowest” Rezoning Density

Potential build-out of Scenario 2 is based on build-out as reflected by looking at the lowest density proposed among the seven active re-zoning applications in the two Subareas: 2.95 units per acre (see Scenario 2 Map below and Attachment 2).

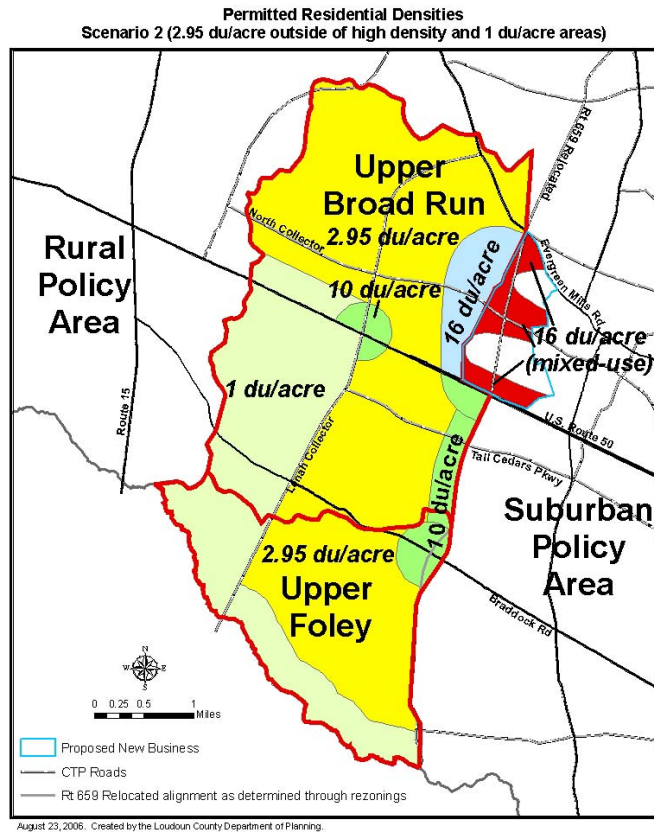
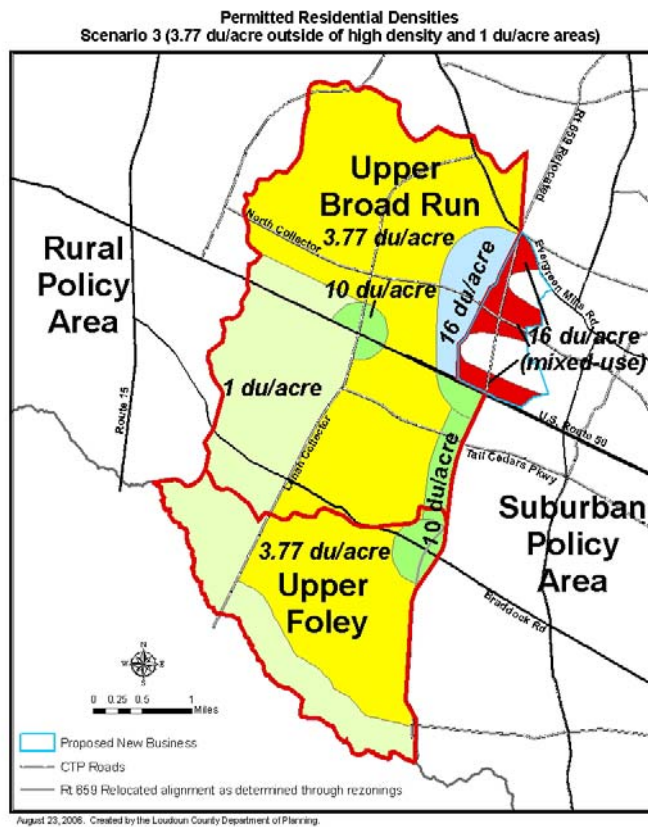


Table 2	Scenario 2-“Lowest” Rezoning Density	
	Upper Broad Run/Upper Foley (UBR/UF)	Suburban Policy Area (SPA)
Density	2.95 dus/acre outside of high density & 1du/acre areas	25% of the developable land area at 16 dwelling units per acre
Housing Units	26,880	1,205
Population*	70,656	2,735
Students*	14,793	452
Anticipated Total Capital Cost	\$889,251,712	\$29,289,333

\*Population and students are calculated based on all residential units being occupied. Typically less than 100% of units are occupied at any given time. For instance, a typical vacancy rate for SFD and SFA units is 5%.

### Scenario 3: “Average” Rezoning Density

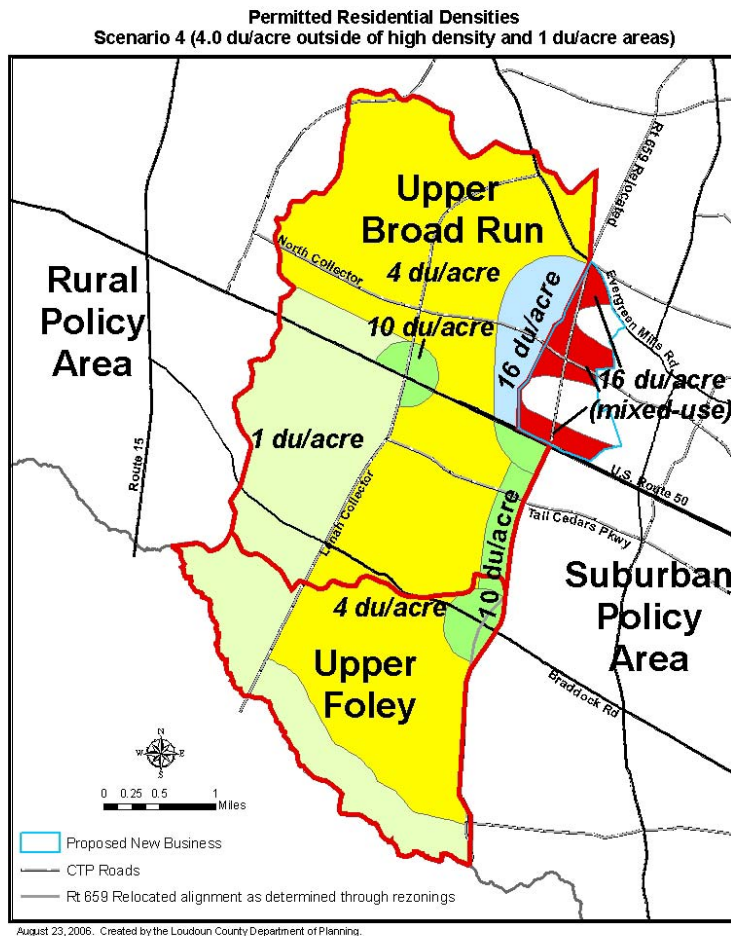


Potential build-out under Scenario 3 is based on build-out as reflected in the densities proposed in the seven active re-zoning applications (list of rezonings included in Attachment 2, Methodology) in the two Subareas and taking the average: 3.77 units per acre (see Scenario 3 Map below).

Table 3	Scenario 3: “Average” Rezoning Density	
	Upper Broad Run/Upper Foley (UBR/UF)	Suburban Policy Area (SPA)
Density	3.77 dus/acre outside of high density and 1 du/acre areas	25% of the developable land area at 16 dwelling units per acre
Housing Units	31,360	1,205
Population*	83,073	2,735
Students*	17,554	452
Anticipated Total Capital Cost	\$1,052,364,480	\$29,289,333

\*Population and students are calculated based on all residential units being occupied. Typically less than 100% of units are occupied at any given time. For instance, a typical vacancy rate for SFD and SFA units is 5%.

## Scenario 4: Planning Commission Recommendation



Potential build-out under Scenario 4 is based on a build-out of the Planning Commission's recommendations (see Scenario 4 Map below and Attachment 2).

Table 4	Scenario 4: Planning Commission Recommendation	
	Upper Broad Run/Upper Foley (UBR/UF)	Suburban Policy Area (SPA)
Density	4.00 dus/acre outside of high density and 1 du/acre areas	25% of the developable land area at 16 dwelling units per acre
Housing Units	32,616	1,205
Population*	86,554	2,735
Students*	18,328	452
Anticipated Total Capital Cost	\$1,098,094,309	\$29,289,333



\*Population and students are calculated based on all residential units being occupied. Typically less than 100% of units are occupied at any given time. For instance, a typical vacancy rate for SFD and SFA units is 5%.